Meet Autodesk

Dominique Pouliquen shares his vision of the future for 3D modeling

Dominique Pouliquen is director for the Autodesk Reality Capture market development. Pouliquen has spent his career in the computer graphics industry since graduating as an engineer from Ecole Superieure d'Electronique de l'Ouest, Angers, France, in 1986. In 1998 he founded REALVIZ, a French CG company that specialized in creating 3D models from 2D imagery. For 10 years Pouliquen worked as REALVIZ's CEO before its acquisition by Autodesk in 2008. Late 2012 Pouliquen relocated to Autodesk headquarters in the San Francisco Bay Area. We recently interviewed him to get his views on new trends in the computer graphics and 3D modeling markets.

Five years ago your company, REALVIZ, was acquired by Autodesk. What have been some tangible results to date from that acquisition?

The main visible result of this acquisition is a photo-to-3D computer vision engine on the cloud behind a product called Autodesk® 123D® Catch software. We started it as a consumer product for hobbyists but now we're ready to roll out a full-featured version for professionals by introducing Autodesk® ReCap™ Photo software. ReCap is a new brand that we just created with the Reality Capture Group: it's short for "Reality Capture." Our plan is to build a family of products and services to serve the industry with outstanding reality capture components. Autodesk ReCap Photo is part of this portfolio, leveraging the photo-to-3D service on Autodesk® 360 cloud offerings.

What is the biggest challenge you see in the industry today?

We're still facing this challenge of "democratization": enabling more people to go beyond the 2D world into 3D. Adding the depth axis brings a lot of interesting aspects—like interactivity—into applications. Of course, we've already seen examples of this in video games. But think about using 3D in web retail. Let's say you have a product that you want to sell on eBay. A picture does an OK job of showing it, but what if you could show it as a 3D object that shoppers could manipulate, spin, rotate, look at the top and bottom? Very compelling, but how do you create this 3D graphic? You could use products like Autodesk® 3ds Max® or Autodesk® Maya® software, but that can take time and requires skill with the software to do a good job. So democratization is an idea that the computer graphics business needs. If we want to extend this capability, there must be democratization. And we believe it could come from "photogrammetry"—the process of transforming 2D photos into 3D models.

Is that the technology driving ReCap?

Yes, part of it. ReCap is one of the new Autodesk technologies that we announced earlier this year. ReCap is a way to deliver powerful and easy-to-use workflows to the desktop or to the cloud for creating intelligent 3D data from laser scans or captured photos. Through the Autodesk 360 cloud service you will be able to upload your flat pictures and get a 3D model back. Another important component of the ReCap family is a new laser preparation application. This is a desktop application that takes your laser scans and prepares them for use inside Autodesk software like Autodesk® AutoCAD®, Autodesk® Revit®, Autodesk® Inventor®, and similar software. The laser preparation application is a new way to streamline the use of laser point clouds inside Autodesk applications.

What problems do you expect that ReCap will help solve in the market?

I'd say it's all about basing any design work from the standpoint of reality: what's it going to be like when it's built, as opposed to how it appears on a flat sheet of paper. Anything that we design is within a context, within something that exists—except, of course, when you create purely imaginary digital worlds, like in some films and video games. But still, you might want your film or video game project to be photorealistic. So if some of the props or assets that you need to build should look real, why don't you start with reality? ReCap is about bringing reality into the design process from existing environments or subjects.

How do you see ReCap working in a production workflow? And what would the benefits be?

I see it working within two main workflows. The first is photo-based; the second is laser-based. For the photo-based workflow, you'd start by taking a series of pictures around an object or a scene; you'd upload those pictures onto the cloud, and get back a fully rendered, highly realistic 3D model. This 3D model is in a format that can be read by most Autodesk software, or recorded in FBX format. You can actively read this 3D model inside Autodesk® Mudbox® software, import it into Maya or 3ds Max, and then start manipulating or editing this model. The work of building the model from scratch is already done for you. When it comes to laser point clouds it's a comparable workflow. A laser scanner can capture billions of XYZ coordinates in space, billions of 3D points, seen from various viewpoints. What we've developed is software that can take the laser scans from most hardware manufacturers, and "bake" them in a way that becomes readable and usable, inside most Autodesk software, again saving you from having to build the model from the beginning. We believe that the bottom line will be faster, more streamlined workflows and services that can help put advanced 3D data into the hands of almost everyone.